

SAPC-15922

Cy / of 6

20 May 1957

MEMORANDUM TO: Deputy Project Director

SUBJECT: Computations on High Density Fuel vs Glove Tank Installations

25X1A9a

1. Refer discussion this date [REDACTED] the following information reference utilization of high density fuel vs Lockheed proposal for installing "glove" tanks is submitted.

A. Wt. of "decalin" 7.4 #/gal
Wt. of LF-1A 6.5 #/gal

B. Lockheed states that with the installation of two (2) 65 gallon glove tanks, the range of the U-2 would be increased by 400 NM. Should these tanks be increased to 100 gallons each, the range would be increased by 600 NM.

C. Computations based upon B. above indicate:

(1) Normal gross wt. take off	19,700 #
Additional wt. of 130 gallons (two 65 gal tanks)	845 #
Wt. of tanks	150 #
New gross wt. take off	20,695 #
Percentage wt. increase	5.1 %
Percentage range increase	10 %
(2) Normal gross wt. take off	19,700 #
Additional wt. of 200 gallons (two 100 gal tanks)	1300 #
Wt. of tanks	150 #
New gross wt. take off	21,150 #
Percentage wt. increase	7.36 %
Percentage range increase	15 %

D. The proposal for the use of a high-density fuel (as shown on accompanying chart) indicates a greater range increase/lb. increase by utilizing a DuPont product named "decalin."

E. Computations based upon D. above indicate:

Kelly says latest poop shows range increased with 200 gal only 400 miles due wgt & drag.

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(1) Normal gross wt. take off	19,700 #
1335 gal. LF-1A	8,790 #
1335 gal. HDF (7.4#/gal)	9,879 #
Gross wt. take off with HDF	20,789 #
Percentage Fuel Wt. increase with HDF	12.5 %
Percentage range increase with HDF	10 % or 400 NM

2. It becomes apparent from paragraph 1. C. (1) that you can obtain an increase in range by 400 NM by using two 65 gallon glove tanks with only a 5.1% increase in gross wt. while utilizing HDF, as shown in paragraph 1. E., would require a 5.62% increase in gross wt. to acquire the same range.

3. Reference paragraph 1. B. (2) an increase in range by 15% (600 NM) could be obtained by using two 100 gallon glove tanks with only an increase in gross wt. of 7.36%.

4. The above percentage of increase in range through the use of "glove" tanks does take into account any loss due to drag.

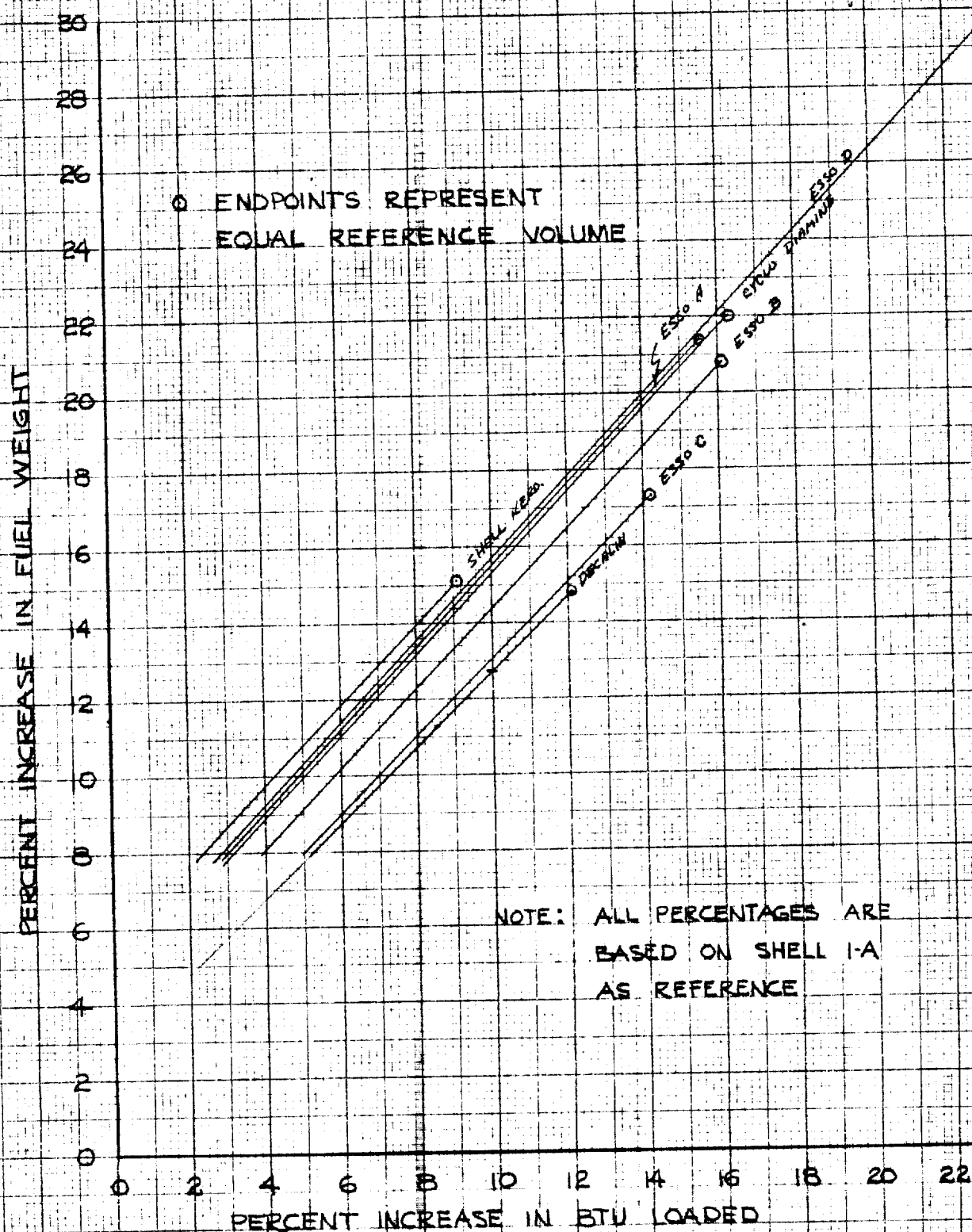
WAW:vt (20 May 57) *corrected for the missing*
Dist: Orig & 1 w/att - Add ✓
3 - Proj Dir
4 - Dir Ops
5 - LO
6 - Chrono

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Lt Col
Deputy Director of Materiel

USAF

COMPARISON OF USEFUL HEAT CONTENT FOR SELECTED HIGH DENSITY FUELS



10X10 TO THE 1/2 INCH 359-11
KEU-FE-6 REGER CO.

